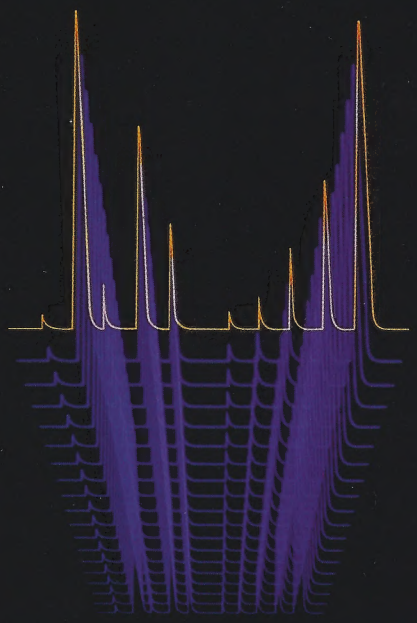
Streamlined data handling for productivity in automated ion analysis



QuikCalc® II Software System

LACHAT
INSTRUMENTS

QuikCalc II Software System: providing the ultimate in performance and ease of use in ion analysis

The Lachat QuikCalc® II Software System is a powerful component of the QuikChem® Automated Ion Analyzer.

QuikCalc II Software provides sophisticated data handling capabilities in a format that is easy to use. The result is improved productivity and enhanced data quality for all your ion analysis applications.

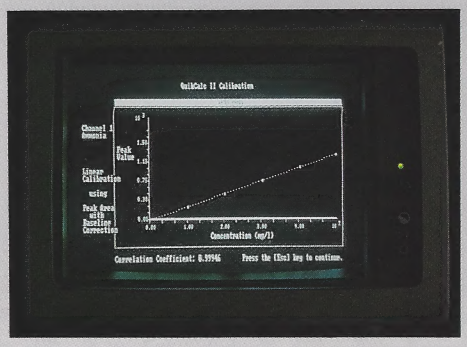
The QuikCalc II Software System was designed for use with the IBM® PC-XT computer and is compatible with the AT as well. Its exceptional capabilities include:

- Fully automatic instrument operation
- Automatic self-calibration and continuous performance monitoring
- Automatic standard curve generation
- Complete data reduction and report generation with real-time results display
- Easy-to-use, menu-driven operation, including on-line Help files and color graphics to highlight key functions
- Interchannel relationship programs
- Multi-tasking capabilities

Performance monitoring: accuracy guaranteed

At the beginning of a sample run, QuikCalc II Software automatically calibrates all analytical channels. Once standards have been processed, a calibration report is printed for the user to approve. In addition, calibration curves for each channel can be displayed and printed for a comprehensive review of calibration data.

The accuracy of your results is further assured by a unique capability of the QuikCalc II Software System—the user-defined data quality monitoring routine. This program continuously monitors data quality during the run for variations in noise, drift, peak shape, and concentration limits. The system alerts you if any of the minimum performance specifications you have defined are not met.

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                QuikCalc II Calibration Report

Method:       Water Panel
Channel 1:    Ammonia
  Automatic Baseline Correction: Yes
  Peak Analysis Technique: Area
  Calibration: Linear

  Correlation Coefficient:  0.99995
  Concentration Values (mg/l)
    Known      Derived
    0.10       0.11
    0.50       0.49
    1.00       0.99
    1.50       1.50
    2.00       2.00
```

With the QuikCalc II System you can verify the accuracy of each data point so you can have full confidence in the results reported.

Random access for streamlined quality control

Flexibility is another key factor in a successful quality control program. Lachat gives you unprecedented flexibility with the unique QuikChem System Standard Selector Valve. This innovative hardware, controlled by the QuikCalc II Software System, enhances the precision, accuracy, and speed of your quality monitoring.

You can inject standards periodically at any time you specify during a run. Calibration and reference standards are automatically introduced as required from bulk solutions. And because there's no need to pipette standards into sample cups, significant time is saved and your entire sample tray can be dedicated to unknowns.

Following completion of the run, the QuikCalc II System advises you of any overrange samples, and furnishes a report with recommended dilution ratios. Diluted samples can be returned to the sample tray, reanalyzed, and—at the push of a button—the results can be integrated with the original report.

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                Dilution Recommendation Report

Cup      ID          Channel No.      Dilution Factor

 7     8501A002          3                 20
 8     8501A003          1                 10
12     8501A007          2                 25
```

With QuikCalc II Software, the system's performance is monitored for accuracy and, if necessary, corrected with ease.

Real-time results: immediate answers

With the QuikCalc II System, the first report is the final report. No time-consuming data manipulation is required to arrive at the answers you need. Immediately after a sample has been processed through all

active analytical channels, a final concentration value is printed. This value has been automatically corrected for baseline and sensitivity drifts, dilution factor, and sample weight.

QuikCalc II Sample Report

1/15/86 15:35

Tray ID: 1 Reference: 8601150a

Method: Water Panel Operator: CBR

Cup	Chemistry: ID	Ammonia mg/l	Phosphate mg/l	Nitrate/Nitrite mg/l	Nitrite mg/l	Nitrate mg/l
6	8501A001	0.23	0.12	0.12	0.07	0.05
7	8501A002	0.12	<0.05 D-	>2.00	0.11	--
8	8501A003	>1.00 B-	0.83	0.37	0.09	0.28
9	8501A004	0.97	0.41	0.69	0.22	0.47
10	8501A005	0.31	0.33	0.56	0.13	0.43
11	8501A006	0.95	>2.50	0.74	0.19	0.55
12	8501A007	0.54	0.08	0.64	0.23	0.41

For a busy laboratory, the ability to get final data this rapidly can result in significant savings in both time and costs.

Comprehensive analysis with multi-component reporting

The QuikCalc II System enables you to generate up to six different data values in the analysis of each sample. Four are based on analytical determinations, while the other two are derived from user-defined programs (or "pseudo-channels").

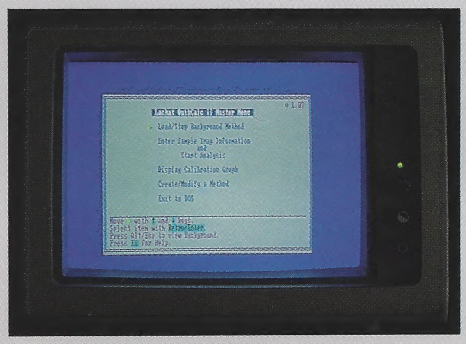
These pseudo-channels can simplify many common analysis applications. For example, nitrate and nitrite can be measured simultaneously and, at the same time, their separate values automatically calculated and printed.

Without the need for user manipulation of data to arrive at desired values, analyses become much easier, with less chance of human error affecting the accuracy of the results.

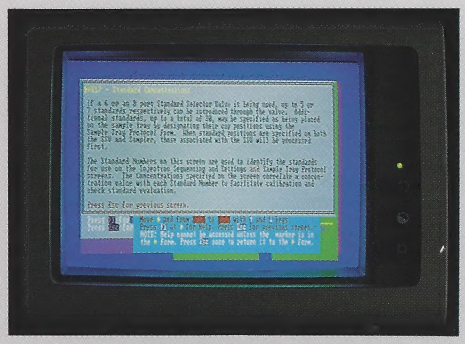
Completely menu-driven for easy operation

With the QuikCalc II System, the computer speaks *your* language and requires no technical computer knowledge to operate. You can access and manipulate the most sophisticated data functions with ease.

Ability to program the computer is not needed either. To create or modify a method, you simply move a marker to the parameter you want to define, and press a button. Each QuikCalc II System screen furnishes complete easily-understood instructions for moving the marker, making a selection, getting help, or



returning to a previous screen. Because the system is menu-driven, commands need not be memorized. If you have any doubt on how to proceed, on-line Help files are available at the press of a key.



Color graphics are standard with the QuikCalc II Software. This feature provides much more than just a pretty picture: color graphics highlight screens and assist the user in identifying key operating functions.

Multi-tasking capabilities for added productivity

The QuikCalc II System incorporates a multi-tasking operating system for greater efficiency in your laboratory. Once initial calibrations are completed for a sample run, QuikCalc II Software can operate the analyzer in the "background," leaving the "foreground" of the computer free for the user to perform other work, such as preparation of the next sample tray, file transfer operations, or a task totally unrelated to the analyzer, such as word processing.

This versatile data processing strength can help maximize the productivity of your entire operation.

Consider the comprehensive features of the QuikCalc II Software System

System control

- Standard selector valve
- Sequential sampler
- Proportioning pump
- Analytical valves

Injection sequencing information

- Calibration sequence
- Calibration frequency
- Calibration verification
- Check standard location
- Check standard frequency
- Sample tray protocol

Data manipulation
(specified for each channel)

- Standard concentrations
- Peak analysis technique (area, height or width)
- Baseline drift correction
- Sensitivity drift correction
- Calibration type (1st-6th order or piecewise)

Exception handling

- Calibration verification
- Baseline noise
- Baseline drift, short term
- Baseline drift, long term
- Sensitivity drift
- Peak shape shift
- Upper and lower concentration limits

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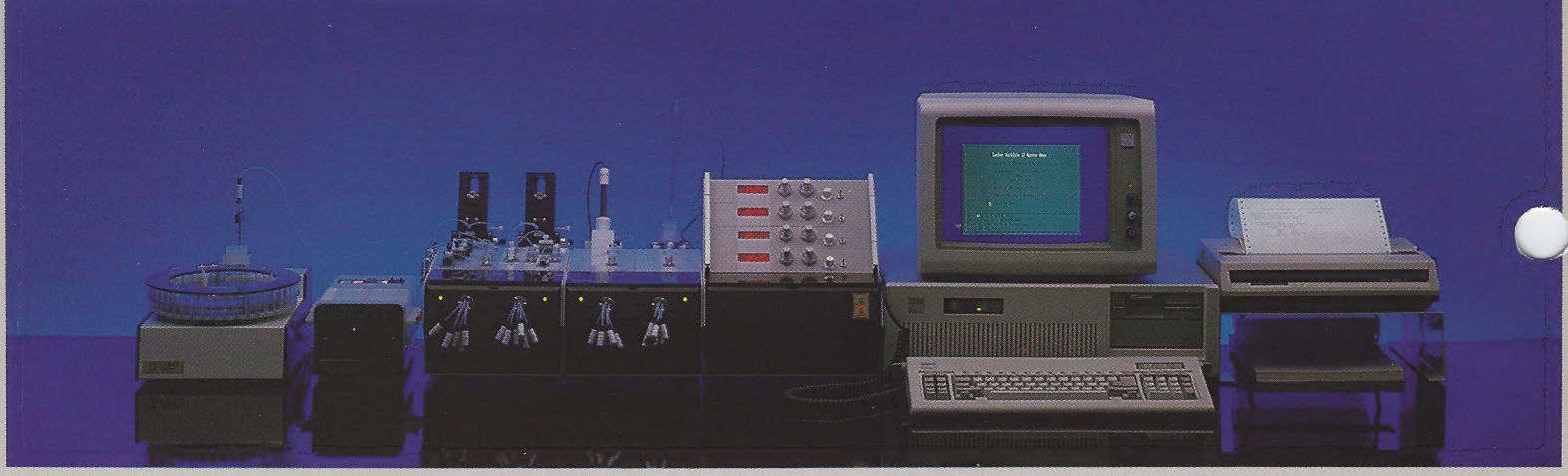

The QuikChem® System: the new standard of performance and productivity in automated ion analysis

The QuikChem Automated Ion Analyzer from Lachat is designed to deliver maximum accuracy and efficiency across a wide range of analytes, in a diversity of sample matrices. In combination with the QuikCalc II Software System, the QuikChem System gives you:

Guaranteed accuracy. Wide dynamic range from ppb to percent ▪ Automatic calibration and standard curve generation ▪ Data quality monitoring ▪ Selectable peak analysis ▪ Resolved baseline between samples ▪ Enhanced dispersion control ▪ Up to six data values per sample.

Increased productivity. Automated sample preparation ▪ Short sample processing time ▪ Fast start-up and shut-down ▪ Simple change-over of chemistries ▪ Simultaneous determinations of up to four analytes ▪ Real-time report generation.

Comprehensive range of applications. Over 50 standard chemistries available ▪ Custom-developed applications guaranteed to meet your exact specifications.

Day-in, day-out reliability. Modular components that are easily upgraded, easily serviced ▪ Rugged design for workhorse applications ▪ The best warranty in the industry.

Easy operation. Accessible to all levels of personnel ▪ Requires no technical computer knowledge ▪ Compatible with the IBM PC-XT and AT.

Get more information

For more information about how the QuikChem Automated Ion Analyzer can meet your analysis needs, please call or write to Lachat Instruments.

QuikCalc II Software System

Technical requirements

In order for the QuikCalc II Software System to operate optimally, the following computer system is required:

- IBM PC-XT or AT
- IBM PC-DOS version 2.0, 2.1, 3.0 or 3.1
- 640K RAM
- One floppy disk drive
- One 10 megabyte hard disk drive
- Color/graphics monitor adapter
- Color monitor, medium resolution
- Printer adapter (parallel printer port)
- 80 column parallel printer (Epson FX-85, Okidata 182 or compatible)

Ordering information

QuikCalc II Software System (Cat. No. 8600-000) includes:

- DoubleDOS Foreground / Background Operating System (addresses 640K RAM maximum)
- QuikCalc II Software Package
- Plug-in Expansion Board with analog-to-digital converters and digital input / output ports (requires one expansion slot in the IBM computer)
- PC Interface Module with input and output connectors

QuikChem Data System, (Cat. No. 8650-000) includes:

- IBM PC-XT with 640K RAM, one 360K floppy disk drive, one 10 megabyte hard disk, color / graphics board, color monitor, parallel printer port, 80 column parallel printer, and QuikCalc II Software System.

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